

IN THE CLAIMS

Please amend the claims as follows:

1. (Original) A method of generating an ultrawideband radio frequency pulse, comprising:
generating a carrier signal having a selected frequency;
shaping the carrier signal with a window function to produce an ultrawideband pulse.
2. (Original) The method of claim 1, wherein the window function comprises a sinusoidal function.
3. (Original) The method of claim 2, wherein the window function comprises one of a Hamming window, a Hanning window, and a Blackman window.
4. (Original) The method of claim 1, further comprising gating the shaped carrier to produce the ultrawideband pulse.
5. (Original) The method of claim 1, wherein the method is performed via a mixer and a CMOS radio frequency switch.
6. (Original) An ultrawideband radio frequency signal generator, comprising:
a first signal generator operable to generate a sinusoidal window function;
a second signal generator operable to generate a carrier signal; and
a mixer operable to produce an ultrawideband radio frequency product signal as a product of the sinusoidal window function and the carrier signal.
7. (Original) The ultrawideband radio frequency signal generator of claim 6, further comprising an RF switch operable to gate the ultrawideband radio frequency output signal.

8. (Original) The ultrawideband radio frequency signal generator of claim 7, wherein the RF switch comprises a P-FET, a first N-FET and a second N-FET;

the source of the P-FET coupled to the first voltage source, the gate of the P-FET coupled to the input voltage level, and the drain of the P-FET coupled to the drain of the first N-FET and the gate of the second N-FET;

the gate of the first N-FET coupled to receive the control signal, and the source of the first N-FET coupled to the drain of the second N-FET;

the source of the second N-FET coupled to the voltage reference.

9. (Original) The ultrawideband radio frequency signal generator of claim 6, wherein the mixer comprises a single-balanced mixer.

10. (Original) The ultrawideband radio frequency signal generator of claim 6, wherein the mixer comprises a double-balanced mixer.

11. (Original) The ultrawideband radio frequency signal generator of claim 6, wherein the mixer comprises a cascade of two or more fixed transconductance amplifiers.

12. (Original) An ultrawideband radio frequency data communications device, comprising:

a first signal generator operable to generate a sinusoidal window function;

a second signal generator operable to generate a carrier signal; and

a mixer operable to produce an ultrawideband radio frequency product signal as a product of the sinusoidal window function and the carrier signal.

13. (Original) The ultrawideband radio frequency data communications device of claim 12, further comprising an RF switch operable to gate the ultrawideband radio frequency output signal.

14. (Original) The ultrawideband radio frequency data communications device of claim 13, wherein the RF switch comprises a plurality of CMOS transistors.

15. (Original) The ultrawideband radio frequency data communications device of claim 12, wherein the mixer comprises a single-balanced mixer.

16. (Original) The ultrawideband radio frequency data communications device of claim 12, wherein the mixer comprises a double-balanced mixer.

17. (Original) The ultrawideband radio frequency data communications device of claim 12, wherein the mixer comprises a cascade of two or more fixed transconductance amplifiers.

18. (Original) A method of generating an ultrawideband radio frequency signal, comprising:
generating a sinusoidal carrier signal having a selected frequency;
generating a sinusoidal window shaping signal having a frequency lower than that of the carrier signal;
mixing the carrier signal and window shaping signal to obtain a product signal; and
gating the product signal to form an ultrawideband signal such that the window shaping signal component of the product forms a sinusoidal window pulse function.

19. (Original) The method of claim 18, wherein the sinusoidal window pulse function comprises one of a Hamming window, a Hanning window, and a Blackman window.

20. (Original) The method of claim 18, wherein the gating is performed via a CMOS radio frequency switch.

21. (Original) An ultrawideband radio frequency signal generator, comprising:
a first signal generator operable to generate a sinusoidal window function;
a second signal generator operable to generate a carrier signal; and
a mixer operable to produce an ultrawideband radio frequency product signal as a product of the sinusoidal window function and the carrier signal; and

an RF switch operable to gate the ultrawideband radio frequency product signal, wherein the RF switch comprises at least three coupled CMOS transistors.

22. The ultrawideband radio frequency signal generator of claim 21, wherein the at least three coupled CMOS transistor are coupled to a first voltage source, a voltage reference of a different voltage than the first voltage source, an input voltage level, a control signal, and an output conductor.

23. (Original) The ultrawideband radio frequency signal generator of claim 22, comprising a P-FET, a first N-FET and a second N-FET;

the source of the P-FET coupled to the first voltage source, the gate of the P-FET coupled to the input voltage level, and the drain of the P-FET coupled to the drain of the first N-FET and the gate of the second N-FET;

the gate of the first N-FET coupled to receive the control signal, and the source of the first N-FET coupled to the drain of the second N-FET;

the source of the second N-FET coupled to the voltage reference.

24. (Original) The ultrawideband radio frequency signal generator of claim 22, wherein the voltage reference comprises a ground voltage level.

25. (Original) An ultrawideband radio frequency data communications system, comprising:

a first signal generator operable to generate a sinusoidal window function;

a second signal generator operable to generate a carrier signal;

a mixer operable to produce an ultrawideband radio frequency product signal as a product of the sinusoidal window function and the carrier signal;

a modulator that is coupled to receive a data signal from a data signal source, the modulator further coupled to modulate the ultrawideband radio frequency product with the data signal; and

an antenna coupled to receive the ultrawideband radio frequency product signal and further operable to transmit the ultrawideband radio frequency product signal.

26. (Original) The ultrawideband radio frequency data communications system of claim 25, wherein the modulator is coupled to the carrier signal produced by the second signal generator, thereby operable to modulate the ultrawideband radio frequency product with the data signal by modulating the carrier signal.

27. (Original) The ultrawideband radio frequency data communications system of claim 25, wherein the modulator is coupled to the ultrawideband radio frequency product signal output from the mixer, thereby operable to modulate the ultrawideband radio frequency product signal with the data signal.

28. (Original) The ultrawideband radio frequency data communications system of claim 25, further comprising an RF switch coupled between the mixer and the antenna, thereby operable to gate the ultrawideband radio frequency product signal with the data signal.

29. (Original) The ultrawideband radio frequency data communications system of claim 28, wherein the mixer is coupled to the RF switch, thereby operable to modulate the ultrawideband radio frequency product signal with the data signal.